INDEX TO AUTHORS

A

ALLENSPACH, ALLAN M., and ROTH, L. E. Structural variations during mitosis in the chick embryo, 179

ANDERSON, H. CLARKE, and COULTER, P. R. Bone formation induced in mouse thigh by cultured human cells, 165

ASHLEY, CHARLES A. See PETERS and ASHLEY, 53

B

BACHMANN, L., and SALPETER, M. M. Absolute sensitivity of electron microscope radioautography, 299

BAJER, ANDREW S. Notes on ultrastructure and some properties of transport within the living mitotic spindle, 713

BARNHISEL, M. L. See KING and BARNHISEL, 265

BARTELS, PAUL G., and WEIER, T. ELLIOT. Particle arrangements in proplastids of *Triticum vulgare* L. seedlings, 243

BAUER, G. ERIC. See ELIASSON, BAUER, and HULTIN, 287

BELL, CHRISTOPHER. See ROBINSON and BELL, 93

BENNETT, M. R., and ROGERS, D. C. A study of the innervation of the taenia coli, 573

BISALPUTRA, A. A. See BISALPUTRA and BISALPUTRA, 511

BISALPUTRA, T., and BISALPUTRA, A. A. Chloroplast and mitochondrial DNA in a brown alga *Egregia menziesii*, 511

BLOCH, DAVID P., MACQUIGG, ROBERT A., BRACK, SHEILAH D., and WU, JUNG-RUNG. The syntheses of deoxyribonucleic acid and histone in the onion root meristem, 451

BORGERS, M. See HUGON and BORGERS, 212

BRACK, SHEILAH D. See BLOCH, MACQUIGG, BRACK, and WU, 451

BRANDT, PHILIP W., LOPEZ, ENRIQUE, REUBEN, JOHN P., and GRUNDFEST, HARRY. The relationship between myofilament packing density and sarcomere length in frog striated muscle, 255

C

CAMERON, D. A., PASCHALL, H. A., and ROBINSON, R. A. Changes in the fine structure of bone cells after the administration of parathyroid extract, 1

CAREY, FRANCIS J., and PETTENGILL, OLIVE S. A time-lapse study of effects of anticellular antibody on membrane mobility and phagocytic activity of HeLa cells, 709

CAROTHERS, ZANE B., and KREITNER, GERALD L. Studies of spermatogenesis in the hepaticae. I. Ultrastructure of the *Vierergruppe* in *Marchantia*, 43

CARROLL, GEORGE C. The ultrastructure of ascospore delimitation in *Saccobolus kerverni*, 218

CATTONI, M. See KUMEGAWA, CATTONI, and ROSE, 720

CLEARY, E. G., SANDBERG, L. B., and JACKSON, D. S. The changes in chemical composition during development of the bovine nuchal ligament, 469

—. See WIRTSCHAFTER, CLEARY, JACKSON, and SANDBERG, 481

COHEN, ALAN S. See SHIRAHAMA and COHEN, 679

COHN, NORMAN S., and VAN DUIJN, P. Constancy of DNA content in adrenal medulla nuclei of cold-treated rats, 349

COOPER, D. P. See REGER and COOPER, 531

COOPER, W. G. See SHOWACRE, COOPER, and PRESCOTT, 273

COULTER, P. R. See ANDERSON and COULTER, 165

COX, R. P. See GRIFFIN, COX, and GRUJIC, 200

CROFTS, ANTONY. See DEAMER and CROFTS, 395

CRONSHAW, JAMES. See ESAU and CRONSHAW, 665

D

DAHL, ROLF H., and PRATLEY, JAMES N. The effects of magnesium on nucleoside phosphatase activity in frog skin, 411

DANON, DAVID. See SKUTELSKY and DANON, 625

DEAMER, DAVID W., and CROFTS, ANTONY. Action of Triton X-100 on chloroplast membranes. Mechanisms of structural and functional disruption, 395

DE DUVE, CHRISTIAN. See DETER and DE DUVE, 437

DE MAN, J. C. H., and NOORDUYN, N. J. A. Light and electron microscopic radioautography of hepatic cell nucleoli in mice treated with actinomycin D, 489

DETER, RUSSELL L., and DE DUVE, CHRISTIAN. Influence of glucagon, an inducer of cellular autophagy, on some physical properties of rat liver lysosomes, 437

DE ZOETEN, GUSTAAF A. See SCHLEGEL and DE ZOETEN, 728

E

ELIASSON, EVA, BAUER, G. ERIC, and HULTIN, TORE. Reversible degradation of polyribosomes in Chang cells cultured in a glutamine-deficient medium, 287

ESAU, KATHERINE, and CRONSHAW, JAMES. Relation of tobacco mosaic virus to the host cells, 665

F

FERNÁNDEZ-MADRID, F. Biosynthesis of collagen. Biochemical and physicochemical characterization of collagen-synthesizing polyribosomes, 27

G

GIFFORD, ERNEST M, JR., and STEWART, KENNETH D. Ultrastructure of the shoot apex of *Chenopodium album* and certain other seed plants, 131

GLICK, J. LESLIE, and SALIM, ANTHONY P. DNA-induced pigment production in a hamster cell line, 209

GOLDSTEIN, LESTER, and PRESCOTT, DAVID M. Proteins in nucleocytoplasmic interactions. I. The fundamental characteristics of the rapidly migrating proteins and the slow turnover proteins of the *Amoeba proteus* nucleus, 637

GOROVSKY, MARTIN A., and WOODARD, JOHN W. Histone content of chromosomal loci active and inactive in RNA synthesis, 723

GRASSO, JOSEPH A., and WOODARD, JOHN W. DNA synthesis and mitosis in erythropoietic cells, 645

GRIFFIN, M. J., COX, R. P., and GRUJIC, N. A chemical method for the isolation of HeLa cell nuclei and the nuclear localization of HeLa cell alkaline phosphatase, 200

GRUJIC, N. See GRIFFIN, COX, and GRUJIC, 200

GRUNDFEST, HARRY. See BRANDT, LOPEZ, REUBEN, and GRUNDFEST, 255

H

HARPER, ELVIN, SEIFTER, SAM, and SCHARRER, BERTA. Electron microscopic and biochemical characterization of collagen in blattarian insects, 385

HOKIN, LOWELL E., and HUEBNER, DOROTHY. Radioautographic localization of the increased synthesis of phosphatidylinositol in response to pancreozymin or acetylcholine in guinea pig pancreas slices, 521

HOLTZMAN, ERIC, NOVIKOFF, ALEX B., and VILLAVERDE, HUMBERTO. Lysosomes and GERL in normal and chromatolytic neurons of the rat ganglion nodosum, 419

HUEBNER, DOROTHY. See HOKIN and HUEBNER, 521

HUGON, J., and BORGERS, M. Fine structural localization of lysosomal enzymes in the absorbing cells of the duodenal mucosa of the mouse, 212

HULTIN, TORE. See ELIASSON, BAUER, and HULTIN, 287

J

JACKSON, D. S. See CLEARY, SANDBERG, and JACKSON, 469

—. See WIRTSCHAFTER, CLEARY, JACKSON, and SANDBERG, 481

JOHNSON, EDWARD A., and SOMMER, JOACHIM R. A strand of cardiac muscle. Its ultrastructure and the electrophysiological implications of its geometry, 103

K

KANNO, YOSHINOBU. See LOEWENSTEIN and KANNO, 225

KARNOVSKY, M. J., See REVEL and KARNOVSKY, C7

KING, DONALD W., and BARNHISEL, M. L. Synthesis of RNA in mammalian cells during mitosis and interphase, 265

KOZLOFF, EUGENE N. See LOM and KOZLOFF, 355

KRAEMER, PAUL M. Configuration change of surface sialic acid during mitosis, 197

KREITNER, GERALD L. See CAROTHERS and KREITNER, 43

KUMEGAWA, M., CATTONI, M., and ROSE, GEORGE G. An unusual droplet in submandibular glands of newborn mice, 720

L

LASANSKY, ARNALDO. Cell junctions in ommatidia of *Limulus*, 365

LIN, HUAI-SAN. A peculiar configuration of agranular reticulum (canaliculate lamellar body) in the rat pinealocyte, 15

LOEWENSTEIN, WERNER R., and KANNO, YOSHINOBU. Intercellular communication and tissue growth. I. Cancerous growth, 225

—. and PENN, RICHARD D. Intercellular communication and tissue growth. II. Tissue regeneration, 235

LOM, JIŘI, and KOZLOFF, EUGENE N. The ultrastructure of *Phalacrocleptes verruciformis*, an unciliated ciliate parasitizing the polychaete *Schizobranchia insignis*, 355

LOPEZ, ENRIQUE. See BRANDT, LOPEZ, REUBEN, and GRUNDFEST, 255

M

MACINNES, JAMES W., and URETZ, ROBERT B. Thermal depolarization of fluorescence from polytene chromosomes stained with acridine orange, 597

MACQUIGG, ROBERT A. See BLOCH, MACQUIGG, BRACK, and WU, 451

MATSUSAKA, TOSHIHIKO. ATPase activity in the ciliary rootlet of human retinal rods, 203

MOSTOFI, F. K. See SUZUKI and MOSTOFI, 605

N

NAKANE, PAUL K., and PIERCE, G. BARRY, JR. Enzyme-labeled antibodies for the light and electron microscopic localization of tissue antigens, 307

NANNINGA, N. Fine structure observed in 50S ribosomal subunits of *Bacillus subtilis*, C1

NEWCOMB, ELDON H. Fine structure of protein-storing plastids in bean root tips, 143

NOORDUYN, N. J. A. See DE MAN and NOORDUYN, 489

NOVIKOFF, ALEX B. See HOLTZMAN, NOVIKOFF, and VILLAVERDE, 419

P

PASCHALL, H. A. See CAMERON, PASCHALL, and ROBINSON, 1

PENN, RICHARD D. See LOEWENSTEIN and PENN, 235

PETERS, THEODORE, JR., and ASHLEY, CHARLES A. An artifact in radioautography due to binding of free amino acids to tissues by fixatives, 53

PETTENGILL, OLIVE S. See CAREY and PETTENGILL, 709

PHILLIPS, DAVID M. Giant centriole formation in *Sciara*, 73
PIERCE, G. BARRY, JR. See NAKANE and PIERCE, 307
PRATLEY, JAMES N. See DAHL and PRATLEY, 411
PRESCOTT, DAVID M. See GOLDSTEIN and PRESCOTT, 637
—. See RAO and PRESCOTT, 281
—. See SHOWACRE, COOPER, and PRESCOTT, 273

R

RAO, M. V. NARASIMHA, and PRESCOTT, DAVID M. Micronuclear RNA synthesis in *Paramecium caudatum*, 281
REGER, J. F., and COOPER, D. P. A comparative study on the fine structure of the basalar muscle of the wing and the tibial extensor muscle of the leg of the lepidopteran *Achalarus lycides*, 531
REUBEN, JOHN P. See BRANDT, LOPEZ, REUBEN, and GRUNDFEST, 255
REVEL, J. P., and KARNOVSKY, M. J. Hexagonal array of subunits in intercellular junctions of the mouse heart and liver, C7
RIEKE, WILLIAM O. See SCHNEIDER and RIEKE, 497
RINGO, DAVID L. Flagellar motion and fine structure of the flagellar apparatus in *Chlamydomonas*, 543
ROBINSON, PETER M., and BELL, CHRISTOPHER. The localization of acetycholinesterase at the autonomic neuromuscular junction, 93
ROBINSON, R. A. See CAMERON, PASCHALL, and ROBINSON, 1
ROGERS, D. C. See BENNETT and ROGERS, 573
ROSE, GEORGE G. See KUMEGAWA, CATTONI, and ROSE, 720
ROTH, L. E. See ALLENSPACH and ROTH, 179

S

SALIM, ANTHONY P. See GLICK and SALIM, 209
SALPETER, M. M. See BACHMANN and SALPETER, 299
SANDBERG, L. B. See CLEARY, SANDBERG, and JACKSON, 469
—. See WIRTSCHAFTER, CLEARY, JACKSON, and SANDBERG, 481
SCHARRER, BERTA. See HARPER, SEIFTER, and SCHARRER, 385
SCHLEGEL, DAVID E., and DE ZOETEN, GUSTAAF A. Improved resolution in light microscope radioautography, 728
SCHNEIDER, LAWRENCE K., and RIEKE, WILLIAM O. DNA replication patterns and chromosomal protein synthesis in opossum lymphocytes in vitro, 497
SEIFTER, SAM. See HARPER, SEIFTER, and SCHARRER, 385
SHIRAHAMA, TSURANOBU, and COHEN, ALAN S. High resolution electron microscopic analysis of the amyloid fibril, 679
SHOWACRE, JANE L., COOPER, W. G., and PRESCOTT, DAVID M. Nucleolar and nuclear RNA synthesis during the cell life cycle in monkey and pig kidney cells in vitro, 273
SKUTELSKY, EHUD, and DANON, DAVID. An electron microscopic study of nuclear elimination from the late erythroblast, 625
SOMMER, JOACHIM R. See JOHNSON and SOMMER, 103
STEIN, OLGA, and STEIN, YECHEZKIEL. Lipid synthesis, intracellular transport, storage, and secretion. I. Electron microscopic radioautographic study of liver after injection of tritiated palmitate or glycerol in fasted and ethanol-treated rats, 319
STEIN, YECHEZKIEL. See STEIN and STEIN, 319
STEWART, KENNETH D. See GIFFORD and STEWART, 131
SUZUKI, TERUO, and MOSTOFI, F. K. Intramitochondrial filamentous bodies in the thick limb of Henle of the rat kidney, 605

U

URETZ, ROBERT B. See MACINNES and URETZ, 597

V

VAN DUIJN, P. See COHN and VAN DUIJN, 349
VILLAVERDE, HUMBERTO. See HOLTZMAN, NOVIKOFF, and VILLAVERDE, 419
VON DER DECKEN, ALEXANDRA. Evidence for regulation of protein synthesis at the translation level in response to dietary alterations, 657

W

WEIER, T. ELLIOT. See BARTELS and WEIER, 243
WEISS, LEONARD. Studies on cell deformability. III. Some effects of EDTA on sarcoma 37 cells, 341
WIRTSCHAFTER, Z. T., CLEARY, E. G., JACKSON, D. S., and SANDBERG, L. B. Histological changes during the development of the bovine nuchal ligament, 481
WOODARD, JOHN W. See GOROVSKY and WOODARD, 723
—. See GRASSO and WOODARD, 645
WU, JUNG-RUNG. See BLOCH, MACQUIGG, BRACK, and WU, 451

Y

YOUNG, RICHARD W. The renewal of photoreceptor cell outer segments, 61

INDEX TO SUBJECTS

A

Acetylcholinesterase, localization of at autonomic neuromuscular junction, in toad urinary bladder, EM cytochemical study, 93

Actinomycin D, effect of on nucleolar RNA synthesis and release, in mouse hepatic cells, labeled with orotic acid-5-^{3}H, radioautographic and EM study, 489

Adrenal medulla, nucleus, effect of stress on DNA content of, in rat, cytophotometric study, 349

Algae, brown, *Egregia menziesii*, DNA fibrils in chloroplasts and mitochondria of, EM study, 511

—, *Chlamydomonas reinhardi*, flagellar motion and fine structure of flagellar apparatus, EM study, 543

Alkaline phosphatase, nuclear localization of in HeLa cell, chemical method for isolation of nuclei, 200

Amino acids, free, artifact in radioautography due to binding of to tissues by fixatives, of rat liver, biochemical and EM study, 53

Amnion cells (human), cultured, bone formation in muscle of corticone-treated mice induced by, radioautographic and EM study, 165

Amyloid, EM study of fibrillar structure of, subprotofibrillar strands identified, 679

Antibodies, enzyme-labeled, localization of antigenic sites with, histochemical and EM study, 307

Antibody, anticellular, effect on membrane motility and phagocytosis of HeLa cells, time-lapse study, 709

Antigens, localization of with enzyme-labeled antibodies, histochemical and EM study, 307

Ascomycete, *Saccobolus kerverni*, membrane formation in ascospore delimitation, EM study, 218

Ascospore delimitation, membrane formation during mitosis, in *Saccobolus*, EM study, 218

ATPase activity, in ciliary rootlet of retinal rods, in human, EM cytochemical study, 203

B

Bacterium, *Bacillus subtilis*, ribosome, 50S subunit of, ribonucleoprotein in, EM study, C1

Basal bodies, of flagella of *Chlamydomonas reinhardi*, flagellar motion and fine structure, EM study, 543

Basement membrane, localization of enzyme-labeled antibodies in, reaction of antigenic sites in, histochemical and EM study, 307

Bladder, urinary, of toad *Bufo marinus*, localization of acetylcholinesterase at autonomic neuromuscular junction, EM cytochemical study, 93

Bone formation, in muscle of cortisone-conditioned mice, induced by cultured FL human amnion cells, radioautographic and EM study, 165

Bone formation, tibia, of rat, changes in fine structure of cells after administration of parathyroid extract, EM study, 1

Bovine, nuchal ligament, changes in chemical composition of during development, 469

—, nuchal ligament, histological changes during development of, elastin fibrillogenesis, 481

C

Calcium, role in cell deformability, effect of EDTA on ascites sarcoma cells, of mouse, radioautographic study, 341

Cancer, liver, in rat, intercellular communication membrane permeability, electrophysiological study, 225

Cells, cultured FL human amnion, bone formation in mouse muscle induced by, radioautographic and EM study, 165

—, cultured, synchronized hamster cells, RNA synthesis during mitosis and interphase, isotope-labeling study, 265

—, rat liver cancer, communication between, membrane permeability, electrophysiological study, 225

Centriole (giant) formation, in larval germ cells, of insect *Sciara*, EM study, 73

Chick, embryo, mitosis in epithelial and mesenchymal cells, role of desmosomes, spindle elongation, EM study, 179

—, embryo, synthesis of collagen on polyribosomes in corium of, biochemical study, 27

Chloroplast, swelling of in Triton X-100, inhibition of photophosphorylation, membrane changes, biochemical and EM study, 395

Chloroplasts and mitochondria, of brown alga *Egregia menziesii*, DNA fibrils in, EM study, 511

—, of *Nicotiana tabacum*, TMV particles in, EM study, 665

—, proplastids, ribosome-like particles in, EM study, 243

Chromosome, relation of histone content to RNA synthesis in, of *Drosophila*, cytochemical study, 723

—, time of synthesis of DNA and histone in, in onion root, radioautographic study, 451

Chromosomes, of opossum lymphocytes, radioautographic study of temporal relationship of protein synthesis to cell cycle, and DNA replication, 497

—, polytene, of *Chironomus*, polarization of fluores-

cence from stretched chromosomes stained with acridine orange, relation of thermal depolarization to thermal denaturation of DNA, relation to bound histones, 597
Collagen and elastin fibrillogenesis, histological changes during development of bovine nuchal ligament, 481
—, in bovine nuchal ligament, changes in concentration of during development, chemical analysis, 469
—, in neural and nonneural organs of cockroach, biochemical and EM study, 385
—, synthesis of on polyribosomes in chick embryo corium, biochemical study, 27
Corium, synthesis of collagen in, of chick embryo, role of polyribosomes, biochemical study, 27
Cytophotometry, in study of DNA content of nucleus, effect of stress, in rat adrenal, cytophotometric study, 349
Cytoplasm, migration of proteins between nucleus and, in *Amoeba proteus*, labeled with amino acids-^{3}H, 637

D

Desmosomes, role in mitosis of epithelial and mesenchymal cells, of chick embryo, EM study, 179
Detergent, Triton X-100, action on chloroplast membranes, inhibition of photophosphorylation, biochemical and EM study, 395
DNA, effect of stress on content of in adrenal medulla nuclei, of rat, cytophotometric study, 349
— fibrils in chloroplasts and mitochondria, of brown alga, EM study, 511
— and histone synthesis in nucleus, relation to time of protein synthesis, in onion root, radioautographic study, 451
—, in bovine nuchal ligament, changes in concentration of during development, chemical analysis, 469
— of cultured melanotic melanoma cells, hamster line, pigment production in amelanotic melanoma cells induced by, 209
— replication and protein synthesis, in chromosomes of opossum lymphocytes, radioautographic study, 497
— synthesis and mitosis, in newt erythropoietic cells, radioautographic and cytochemical study, 645
—, thermal denaturation of in polytene chromosomes, of *Chironomus*, relation to polarization of fluorescence of chromosomes stained with acridine orange, role of bound histone, 597
Duodenal mucosa, localization of lysosomal enzymes in absorbing cells of, in mouse, EM cytochemical study, 212

E

EDTA, effect on deformability of ascites sarcoma cells, of mouse, role of calcium, radioautographic study, 341
Elastin and collagen fibrillogenesis, histological changes during development of bovine nuchal ligament, 481
Elastin and collagen fibrillogenesis, in bovine nuchal ligament, changes in concentration of during development, chemical analysis, 469
Electrophoretic mobility, changes related to mitosis and surface sialic acid, of cultured ovarian cells of hamster, 197
EM radioautography, quantitation of, absolute sensitivity of, 299
Endoplasmic reticulum, agranular, peculiar configuration of, "canaliculate lamellar body," in rat pinealocyte, EM study, 15
— reticulum, in ommatidial cells of *Limulus* eye, electrical coupling between cells, EM study, 365
Enzymes, acid phosphatase, horseradish peroxidase conjugation to antibodies, localization of tissue antigens, histochemical and EM study, 307
Epidermis, of frog, nucleoside phosphatase activity in, effect of magnesium on, histochemical study, 411
Epithelial and mesenchymal cells, of chick embryo, structural variations during mitosis, EM study, 179
Erythroblast, expulsion of nucleus from in reticulocyte formation, of mouse spleen, EM study, 625
Erythropoietic cells, of newt, DNA synthesis and mitosis in, radioautographic and cytochemical study, 645
Eye, *Limulus*, structure of ommatidial cells, endoplasmic reticulum, electrical coupling between cells, EM study, 365

F

Fibers, of rabbit heart muscle, electrophysiology and ultrastructure of, 103
Fibroblast proliferation and bone formation, induced by cultured FL human amnion cells, in mouse muscle, radioautographic and EM study, 165
Fixatives, artifact in radioautography due to binding of free amino acids to tissues by, of rat liver, biochemical and EM study, 53
Flagella, of *Chlamydomonas reinhardi*, motion and fine structure of, EM study, 543
Fluorescence, polarization of, from stretched polytene chromosomes, of *Chironomus* stained with acridine orange, relation of thermal depolarization to thermal denaturation of DNA, relation to bound histones, 597
Frog, retinal photoreceptor cells, utilization of methionine-^{3}H by, renewal of outer segments of, radioautographic study, 61
—, skin, nucleoside phosphatase activity in, effect of magnesium on, histochemical study, 411
—, striated muscle, sarcomere length and myofilament packing density, EM study, 255

G

GERL, lysosomes, in neurons, chromatolysis, in ganglion nodosum, of rat, cytochemical and EM study, 419
Glucagon, effect on lysosomes, autophagic vacuole formation, changes in sedimentation properties, of rat liver, biochemical study, 437

Glutamine deficiency, effect on protein and RNA formation, reversible degradation of polyribosomes, of cultured Chang liver cells, biochemical study, 287
Golgi apparatus, role in intracellular movement of labeled lipid, in rat liver, mitochondria, endoplasmic reticulum, biochemical and EM radioautographic study, 319
Guinea pig, exocrine pancreas, increase of phosphatidylinositol synthesis in endoplasmic reticulum and Golgi apparatus of, stimulation of enzyme secretion by acetylcholine or pancreozymin, radioautographic study, 521
— pig, taenia coli muscle, anatomical and electrophysiological study of innervation of, EM study, 573

H

Hamster, culture of synchronized cells, RNA synthesis during mitosis and interphase, isotope-labeling study, 265
—, cultured amelanotic melanoma cells, pigment production induced by DNA, from melanotic melanoma cells, 209
—, ovarian cells, cultured, electrophoretic mobility changes related to cell division and surface sialic acid, 197
Heart and liver, of mouse, intercellular junctions, hexagonal array of subunits in, EM study, C7
— muscle, of rabbit, electrophysiology and ultrastructure of fibers of, 103
HeLa cell, chemical method for isolation of nuclei of, nuclear localization of alkaline phosphatase, 200
— cells, effect of anticellular antibody on membrane motility and phagocytosis, time-lapse study, 709
Hepatic cell, of mouse, effect of actinomycin D on nucleolar RNA synthesis and release, labeled with orotic acid-5-^{3}H, radioautographic and EM study, 489
Histone, bound, in chromosomes, of *Chironomus*, relation of to thermal depolarization of stretched polytene chromosomes stained with acridine orange, and to thermal denaturation of DNA, 597
—, relation of to RNA synthesis of chromosomes, in *Drosophila*, cytochemical study, 723
—, synthesis in nucleus, relation to time of DNA replication, in onion root, radioautographic study, 451
Human, retinal rods, ATPase activity in ciliary rootlet of, EM cytochemical study, 203
—, spleen and liver, amyloid-laden, EM study of fibrillar structure of amyloid, 679
Hydroxylysine, in neuroglandular tissue of cockroach, collagen, biochemical and EM study, 385
Hydroxyproline, in neuroglandular tissue of cockroach, collagen, biochemical and EM study, 385

I

Inclusions, filamentous, intramitochondrial, in thick limb of Henle, in rat kidney, EM study, 605
Innervation of taenia coli, of guinea pig, anatomical and electrophysiological study of, EM study, 573
Insect, *Chironomus thummi*, polarization of fluorescence from stretched polytene chromosomes stained with acridine orange, relation of thermal depolarization to thermal denaturation of DNA, relation to bound histones, 597
—, cockroach, collagen in neural and nonneural organs, biochemical and EM study, 385
—, *Drosophila virilis*, chromosomes, relation of histone content to RNA synthesis, cytochemical study, 723
—, *Sciara*, giant centriole formation in larval germ cells, EM study, 73
Invertebrate, *Limulus*, eye, structure of ommatidial cells, endoplasmic reticulum, electrical coupling between cells, EM study, 365

J

Junctions, intercellular, hexagonal array of subunits in, of mouse heart and liver, EM study, C7

K

Kidney cells, cultured, of monkey and pig, nucleolar and nuclear RNA synthesis during cell life cycle, cinemicrographic and radioautographic study, 273
—, thick limb of Henle, of rat, intramitochondrial filamentous bodies in, EM study, 605

L

Lepidopteran, *Achalarus lyciades*, comparison of structure of fibers of basalar wing muscle and tibial extensor muscle, EM study, 531
Ligament, bovine nuchal, changes in chemical composition of during development, 469
—, bovine nuchal, histological changes during development of, elastin fibrillogenesis, 481
Light microscopy, improved resolution for radioautography in, 728
Lipid, increase of phosphatidylinositol synthesis in endoplasmic reticulum and Golgi apparatus of exocrine pancreas, of guinea pig, stimulation of enzyme secretion by acetylcholine or pancreozymin, radioautographic study, 521
—, synthesis of from labeled precursors in rat liver, intracellular movement of, biochemical and EM radioautographic study, 319
Liver, cancer, in rat, intercellular communication, membrane permeability, electrophysiological study, 225
— cells, Chang's, cultured, reversible degradation of polyribosomes in, effect of glutamine-deficient medium on protein and RNA formation, biochemical study, 287
— and heart, of mouse, intercellular junctions, hexagonal array of subunits in, EM study, C7
— lysosomes, of rat, effect of glucagon on, autophagic vacuole formation, biochemical study, 437
—, of rat, artifact in radioautography due to binding of free amino acids to tissues by fixatives, biochemical and EM study, 53

Liver, rat, intracellular movement of labeled lipid in, Golgi apparatus, mitochondria, lipid droplets, endoplasmic reticulum, biochemical and EM radioautographic study, 319
—, regenerating, of rat, and urodele skin, intercellular communication, electrophysiological study, 235
Lymphocytes, opossum, DNA replication and chromosomal protein synthesis, radioautographic study, 497
Lysosomal enzymes, localization of in absorbing cells of duodenal mucosa, of mouse, EM cytochemical study, 212
Lysosomes, GERL, in neurons, chromatolysis, in ganglion nodosum, of rat, cytochemical and EM study, 419
—, rat liver, effect of glucagon on, autophagic vacuole formation, changes in sedimentation properties, biochemical study, 437

M

Magnesium, effect of on nucleoside phosphatase activity in frog skin, histochemical study, 411
Melanin pigment production in cultured amelanotic melanoma cells, of hamster, induced by DNA from melanotic melanoma cells, 209
Melanoma cells, cultured, of hamster, pigment production induced in amelanotic cells by DNA from melanotic cells, 209
Membrane formation in ascospore delimitation, in *Saccobolus*, EM study, 218
— motility, effect of anticellular antibody on, of HeLa cells, time-lapse study, 709
— potential, change of, in smooth muscle cells of taenia coli, of guinea pig, electrophysiological and anatomical study of innervation, EM study, 573
Membranes, increase of phosphatidylinositol synthesis in endoplasmic reticulum and Golgi apparatus, of exocrine pancreas, in guinea pig, stimulation of enzyme secretion by acetylcholine or pancreozymin, radioautographic study, 521
—, of spinach chloroplasts, action of Triton X-100 on, mechanisms of structural and functional disruption, EM study, 395
Mesenchymal and epithelial cells, of chick embryo, structural variations during mitosis, EM study, 179
Micronucleus, RNA synthesis in, of *Paramecium*, radioautographic study, 281
Microsomes, protein synthesis by, in rat liver, effect of diet on, biochemical study, 657
Missile-like bodies, of protozoa *Phalacrocleptes*, suctorial organelles, ultrastructure of, EM study, 355
Mitochondria and chloroplasts, of brown alga, DNA fibrils in, EM study, 511
—, filamentous bodies found in matrix of, in thick limb of Henle, in rat kidney, EM study, 605
—, formation of membranes of, in yeast, effect of chloramphenicol treatment on synthesis of cytochromes and, biochemical and EM study, 605
—, in cells of vegetative shoot apices of seed plants, EM study, 131
Mitochondria and chloroplasts, in frog epidermis, nucleoside phosphatase activity in, effect of magnesium, histochemical study, 411
—, swelling of, in osteoblasts after administration of parathyroid extract, in rat, EM study, 1
Mitosis, configuration change of surface sialic acid during, electrophoretic mobility, of cultured ovarian cells of hamster, 197
— and DNA synthesis, in newt erythropoietic cells, radioautographic and cytochemical study, 645
—, in epithelial and mesenchymal cells, of chick embryo, role of desmosomes, spindle elongation, EM study, 179
—, in larval germ cells, reproduction of centrioles during, of insect *Sciara*, EM study, 73
— and interphase, RNA synthesis during, in synchronized hamster cells, isotope labeling study, 265
Mitotic spindle, small particle movement in area of, in *Haemanthus* endosperm, time-lapse study, 713
Monkey and pig, cultured kidney cells, nucleolar and nuclear RNA synthesis during cell life cycle, cinemicrographic and radioautographic study, 273
Mouse, cortisone-treated, bone formation induced by cultured human FL amnion cells, radioautographic and EM study, 165
—, duodenal mucosa, localization of lysosomal enzymes in absorbing cells, EM cytochemical study, 212
—, heart and liver, intercellular junctions, hexagonal array of subunits in, EM study, C7
—, hepatic cell, effect of actinomycin D on nucleolar RNA synthesis and release, labeled with orotic acid-5-^{3}H, radioautographic and EM study, 489
—, newborn, submandibular gland, unusual droplet in acinar cell, EM study, 720
—, retinal photoreceptor cells, utilization of methionine-^{3}H by, renewal of outer segments of, radioautographic study, 61
—, sarcoma 37, effect of EDTA treatment on deformability of cells, role of calcium, radioautographic study, 341
—, spleen, nuclear elimination from erythroblast of, EM study, 625
—, tissues, localization of antigenic sites with enzyme-labeled antibodies, histochemical and EM study, 307
Muscle fibers, of lepidopteran, comparison of structure of in basalar wing muscle and tibial extensor muscle, EM study, 531
—, heart, of rabbit, electrophysiology and ultrastructure of fibers of, 103
—, smooth, guinea pig taenia coli, anatomical and electrophysiological study of innervation of, EM study, 573
—, smooth, of toad urinary bladder, localization of acetylcholinesterase at autonomic neuromuscular junction, EM cytochemical study, 93
—, striated, of frog, sarcomere length and myofilament packing density, EM study, 255

Myofilament, packing density of, sarcomere length, in striated muscle, of frog, EM study, 255

N

Neuromuscular junction, autonomic, localization of acetylcholinesterase at, in toad urinary bladder, EM cytochemical study, 93
Neurons, chromatolysis in, lysosomes and GERL, of rat ganglion nodosum, cytochemical and EM study, 419
Newt, erythropoietic cells, DNA synthesis and mitosis, radioautographic and cytochemical study, 645
Nuclei, of HeLa cells, chemical method for isolation of, nuclear localization of alkaline phosphatase, 200
Nucleolar and nuclear RNA synthesis, during cell life cycle, in cultured kidney cells of monkey and pig, cinemicrographic and radioautographic study, 273
Nucleolus, of mouse hepatic cell, effect of actinomycin D on RNA synthesis and release in, labeled with orotic acid-5-^{3}H, radioautographic and EM study, 489
Nucleoside phosphatase activity, in frog skin, effect of magnesium on, histochemical study, 411
Nucleus, effect of stress on DNA content of, in rat adrenal, cytophotometric study, 349
—, expulsion of from erythroblast, in mouse spleen, EM study, 625
—, migration of proteins between cytoplasm and, in *Amoeba proteus*, labeled with amino acids-^{3}H, 637
—, synthesis of RNA in micronucleus of *Paramecium*, radioautographic study, 281

O

Opossum, lymphocytes, use of radioactive label in study of DNA replication and chromosomal protein synthesis, radioautographic study, 497
Osteoblasts, changes in fine structure of bone cells after administration of parathyroid extract, in rat EM study, 1

P

Pancreas, exocrine, of guinea pig, increase of phosphatidylinositol synthesis in endoplasmic reticulum and Golgi apparatus of, stimulation of enzyme secretion by acetylcholine or pancreozymin, radioautographic study, 521
Parathyroid extract, changes in fine structure of bone cells after administration of, in rat, EM study, 1
Parenchyma cells, of *Nicotiana tabacum*, TMV particles in, EM study, 665
Phagocytosis, effect of anticellular antibody on membrane motility and, of HeLa cells, time-lapse study, 709
Pinealocyte, of rat, peculiar configuration of agranular reticulum "canaliculate lamellar body" in, EM study, 15
Plant, *Allium cepa*, meristem, DNA and histone synthesis in nucleus, time relation, radioautographic study, 451
—, *Haemanthus katherinae*, endosperm, small particle movement in mitotic spindle area, time-lapse study, 713
—, liverwort *Marchantia polymorpha*, structure and interrelationships of four-layered organelle *Vierergruppe* in spermatids of, spermatogenesis in hepaticae, EM study, 43
—, *Nicotiana tabacum*, infected with TMV, EM study of distribution of virus particles, 665
—, *Phaseolus vulgaris*, fine structure of plastids, in root-tip cells, protein and starch storage, EM study, 143
—, spinach, effect of Triton X-100 on chloroplast membranes, inhibition of photophosphorylation, biochemical and EM study, 395
—, *Triticum vulgare*, ribosome-like particles in proplastids of, EM study, 243
Plants, *Chenopodium album* and other seed plants, ultrastructure of cells of the shoot apices, EM study, 131
Plastids, fine structure of, protein and starch storage, in bean root-tip cells, EM study, 143
—, in cells of vegetative shoot apices of seed plants, EM study, 131
Polyribosomes, synthesis of collagen on, in chick-embryo corium, biochemical study, 27
Proplastids, ribosome-like particles in, in wheat seedlings, EM study, 243
Protein and RNA, effect of glutamine defiency on, reversible degradation of polyribosomes, in cultured Chang liver cells, biochemical study, 287
— and starch storage, in plastids, of bean root-tip cells, EM study. 143
— synthesis and DNA replication, in chromosomes of opossum lymphocytes, radioautographic study, 497
— synthesis, effect of diet on microsomes, of rat liver, biochemical study, 657
Proteins, labeled with amino acids-^{3}H, migration of between nucleus and cytoplasm, of *Amoeba proteus*, 637
Protozoa, *Amoeba proteus*, migration of proteins between nucleus and cytoplasm of, labeled with amino acids-^{3}H, 637
—, *Paramecium caudatum*, RNA synthesis in micronucleus, radioautographic study, 281
—, *Phalacrocleptes verruciformis*, suctorial organelles, missile-like bodies, ultrastructure of, EM study, 355

R

Rabbit, heart muscle, electrophysiology and ultrastructure of fibers of, 103
Radioactive label, amino acids-^{3}H, migration of proteins between nucleus and cytoplasm, of *Amoeba proteus*, 637
— label, arginine-^{3}H, lysine-^{3}H, thymidine-^{3}H, onion root meristem, DNA and histone synthesis in nucleus, time relation, radioautographic study, 451
— label, cytidine-^{3}H and uridine-^{3}H, nucleolar and nuclear RNA synthesis during cell life cycle, in

cultured kidney cells of monkey and pig, cinemicrographic and radioautographic study, 273
Radioactive label, EDTA-^{14}C, effect of on deformability of ascites sarcoma cells, of mouse, role of calcium, radioautographic study, 341
— label, gelatin containing methyl-^{3}H-thymidine, ^{35}S-sodium sulfate, quantitation and absolute sensitivity of EM radioautography, 299
— label, L-leucine-^{14}C, DL-leucine-1-^{14}C, in rat liver microsomes, effect of diet on protein synthesis, biochemical study, 657
— label, leucine-^{14}C, leucine-^{3}H, artifact in radioautography due to binding of free amino acids to tissues by fixatives, of rat liver, biochemical and EM study, 53
— label, leucine-^{14}C, uridine-^{14}C, phenylalanine-^{14}C, incorporation into protein and RNA, polyribosome degradation, effect of glutamine deficiency, of cultured Chang liver cells, biochemical study, 287
— label, methionine-^{3}H, utilization of by retinal photoreceptor cells, renewal of outer segments, in rat and mouse and frog, radioautographic study, 61
— label, orotic acid-5-^{3}H, study of effect of actinomycin D on nucleolar RNA synthesis and release, in mouse hepatic cell, radioautographic and EM study, 489
— label, palmitate-^{3}H, glycerol-^{3}H, intracellular movement of in liver of fasted and ethanol-treated rats, triglyceride formation, Golgi apparatus, mitochondria, lipid droplets, endoplasmic reticulum, biochemical and EM radioautographic study, 319
— label, proline-^{14}C, uptake in collagen biosynthesis, in chick-embryo corium, biochemical study, 27
— label, thymidine-^{3}H, bone formation in mouse muscle induced by cultured FL human amnion cells, radioautographic and EM study, 165
— label, thymidine-^{3}H, DNA synthesis and mitosis, in newt erythropoietic cells, radioautographic and cytochemical study, 645
— label, thymidine-^{3}H in study of DNA replication, arginine-^{3}H in study of chromosomal protein synthesis, of opossum lymphocytes, radioautographic study, 497
— label, thymidine-^{3}H, uridine-^{3}H, RNA and DNA synthesis in macro- and micronucleus, of *Paramecium*, radioautographic study, 281
— label, uridine-^{3}H, in plant tissue, improved resolution in light microscope radioautography, 728
— label, uridine-^{3}H, RNA synthesis during mitosis and interphase in synchronized hamster cells, isotope-labeling study, 265
— label, use of myoinositol-2-^{3}H to study increase of phosphatidylinositol synthesis in endoplasmic reticulum and Golgi apparatus, of exocrine pancreas, in guinea pig, stimulation of enzyme secretion by acetylcholine or pancreozymin, radioautographic study, 521
Radioautographic artifact, due to binding of free amino acids to tissues by fixatives, of rat liver, biochemical and EM study, 53
Radioautography, improved resolution for in light microscopy, 728
—, with electron microscope, quantitation of, absolute sensitivity of, 299
Rat, adrenal medulla, nucleus, DNA content of, effect of stress, cytophotometric study, 349
—, bone, changes in fine structure of cells after administration of parathyroid extract, EM study, 1
—, ganglion nodosum, chromatolysis, lysosomes and GERL, cytochemical and EM study, 419
—, kidney, intramitochondrial filamentous bodies in thick limb of Henle of, EM study, 605
—, liver, artifact in radioautography due to binding of free amino acids to tissues by fixatives, biochemical and EM study, 53
—, liver, cancer, intercellular communication, membrane permeability, electrophysiological study, 225
—, liver, intracellular movement of labeled lipid in, Golgi apparatus, mitochondria, lipid droplets, endoplasmic reticulum, biochemical and EM radioautographic study, 319
— liver, lysosomes, effect of glucagon on, autophagic vacuole formation, changes in sedimentation properties, biochemical study, 437
—, liver microsomes, effect of diet on protein synthesis by, biochemical study, 657
—, liver, regenerating, and urodele skin, intercellular communication, electrophysiological study, 235
—, pinealocyte, peculiar configuration of agranular reticulum "canaliculate lamellar body" in, EM study, 15
—, retinal photoreceptor cells, utilization of methionine-^{3}H by, renewal of outer segments of, radioautographic study, 61
Reticulocyte formation, in mouse spleen, expulsion of nucleus from erythroblast, EM study, 625
Retina, photoreceptor cells of, utilization of methionine-^{3}H by, renewal of outer segments of, in rat and mouse and frog, radioautographic study, 61
Retinal rods, ATPase activity in ciliary rootlet of, in human, EM cytochemical study, 203
Retinular, glial, eccentric cells in ommatidia of *Limulus*, electrical coupling between, structure of, EM study, 365
Ribonucleoprotein, in 50S subunit of ribosome of *B. subtilis*, EM study, C1
Ribosome, 50S subunit of, ribonucleoprotein in, *B. subtilis*, EM study, C1
Ribosome-like particles, in proplastids of wheat seedlings, EM study, 243
Ribosomes, polyribosomes, reversible degradation of, effect of glutamine deficiency in medium on protein and RNA formation, of cultured Chang liver cells, biochemical study, 287
RNA, in ribosome-like particles in proplastids of wheat seedlings, EM study, 243
— synthesis, during mitosis and interphase, in synchronized hamster cells, isotope-labeling study, 265
— synthesis, in micronucleus of *Paramecium*, radioautographic study, 281

RNA synthesis, nucleolar and nuclear, during cell life cycle, in cultured kidney cells of monkey and pig, cinemicrographic and radioautographic study, 273
— synthesis, relation of to histone content of chromosomes, in *Drosophila*, cytochemical study, 723
— synthesis and release in nucleolus, of mouse hepatic cells, effect of actinomycin D on, labeled with orotic acid-5-^{3}H, radioautographic and EM study, 489

S

Sarcoma 37, of mouse, effect of EDTA treatment on deformability of cells, role of calcium, radioautographic study, 341
Sarcomere length, myofilament packing density, in striated muscle, of frog, EM study, 255
Sialic acid (cell surface), relation to mitosis and electrophoretic mobility, of cultured ovarian cells of hamster, 197
Skin, of urodele, and regenerating rat liver, intercellular communication, electrophysiological study, 235
Spermatids, of liverwort *Marchantia polymorpha*, structure and interrelationships of four-layered organelle *Vierergruppe* in, spermatogenesis in hepaticae, EM study, 43
Spermatogenesis in hepaticae, liverwort *Marchantia polymorpha*, structure and interrelationships of four-layered organelle *Vierergruppe* in spermatids, EM study, 43
Spleen, mouse, nuclear elimination from erythroblast of, EM study, 625
Spore membrane formation in ascospore delimitation, in *Saccobolus*, EM study, 218
Starch and protein storage, in plastids, of bean root-tip cells, EM study, 143
Submandibular gland, of newborn mouse, unusual droplet in acinar cell, EM study, 720
Suctorial organelles, of protozoa *Phalacrocleptes*, missile-like bodies, ultrastructure of, EM study, 355

T

TMV, infection of *Nicotiana tabacum* with, EM study of distribution of virus particles, 665
Toad, *Bufo marinus*, localization of acetylcholinesterase at autonomic neuromuscular junction, of urinary bladder, EM cytochemical study, 93

U

Urodele, skin, and regenerating rat liver, intercellular communication, electrophysiological study, 235

V

Vacuoles, autophagic, formation in lysosomes, effect of glucagon on, of rat liver, biochemical study, 437
—, in cells of vegetative shoot apices of seed plants, EM study, 131
Vierergruppe, four-layered organelle in spermatids of liverwort *Marchantia polymorpha*, structure and interrelationships of, spermatogenesis in hepaticae, EM study, 43